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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/037,250	01/07/2002	Mohammad Haghighi	201-0662	6162

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EXAMINER

PHAM, THOMAS K

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 04/26/2004

8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/037,250

Applicant(s)

HAGHGOOIE ET AL.

Examiner

Thomas K Pham

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2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 February 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

Response to Amendment

1. Applicant's arguments with respect to claims 1-18 have been considered but are moot in view of the new ground(s) of rejection.

DETAILED ACTION

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bergstrom U.S. Patent no. 6,249,418.

Regarding claims 1, 7 and 14

Bergstrom teaches controlling an electromechanical valve assembly, said valve assembly having a first solenoid, a second solenoid and an valve armature positioned between said first solenoid and said second solenoid (col. 10 lines 23-47, "Internal combustion engines ... the two coils themselves") comprising: changing a voltage applied to said first solenoid from a first polarity to a second polarity (col. 8 lines 10-17, "The voltage appearing across ... eddy currents induced in the core"); measuring an induced current in said first solenoid (col. 11 lines 7-11, "The moving magnet will ... used in Type 1 systems") but does not teach holding said voltage at said second polarity for a predetermined time period at a predetermined amplitude to decrease said induced current, said predetermined time period or said predetermined amplitude being determined based

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on said induced current. However, Bergstrom teaches the amplifier can be configured to allow large positive and negative voltage swings resulting in rapid increase or decrease of the current (col. 7 lines 4-7, "The amplifier in FIG. 2 ... the current in the coil"). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made for the configuring amplifier to hold the negative voltage swing at a certain amplitude for a period of time in order to decrease the current accordingly.

Regarding claims 2, 8 and 15

Bergstrom teaches increasing said first predetermined time period when said induced current has a positive value (col. 7 lines 4-7, "The amplifier in FIG. 2 ... the current in the coil").

Regarding claims 3, 9 and 16

Bergstrom teaches increasing said predetermined amplitude when said induced current has a positive value (col. 7 lines 4-7, "The amplifier in FIG. 2 ... the current in the coil").

Regarding claims 4, 10 and 17

Bergstrom teaches decreasing said first predetermined time period when said current has a negative value (col. 7 lines 4-7, "The amplifier in FIG. 2 ... the current in the coil").

Regarding claims 5, 11 and 18

Bergstrom teaches decreasing said predetermined amplitude when said current has a negative value (col. 7 lines 4-7, "The amplifier in FIG. 2 ... the current in the coil").

Regarding claims 6 and 12

Bergstrom teaches first polarity is a positive polarity and said second polarity is a negative polarity (col. 8 lines 10-13, "The voltage appearing ... in the opposite direction").

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Regarding claim 13

Bergstrom teaches controller generates a release command to change the voltage (col. 8 lines 45-49, "the controller may need ... may be very stable").

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to examiner *Thomas Pham*; whose telephone number is (703) 305-7587 and fax number is (703) 746-8874, Monday-Thursday and every other Friday from 7:30AM- 5:00PM EST or contact Supervisor *Mr. Anthony Knight* at (703) 308-3179.

Any response to this office action should be mailed to: **Director of Patents and Trademarks Washington, D.C. 20231**, or **Hand-delivered** responses should be brought to **Crystal Park II, 2121 Crystal Drive Arlington, Virginia, (Receptionist located on the 4th floor)**, or fax to the **official fax number (703) 872- 9306**.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

Thomas Pham
Patent Examiner

TP

April 23, 2004



Anthony Knight
Supervisory Patent Examiner
Group 3600